

# Fermi 10th Anniversary Activities

Judy Racusin (NASA/GSFC)

*Fermi Users Group Meeting, July 30, 2018*



# Fermi@10 Goals for 2018

- Increase Fermi's public profile via
  - social media
    - tumblr, twitter, facebook, reddit AMA, Fermi Friday blog, APOD
  - public lectures/events
    - US Science & Engineering Festival, AwesomeCon, Astronomy on Tap, lots of other talks
  - products
    - posters, science on sphere, infographic, stickers, send a thing/get a thing
- Recognize Fermi's science, development, and community via conferences, celebrations, press
- Contributors:
  - Elizabeth Ferrara, Roopesh Ojha, Dave Thompson, Judy Racusin, Regina Caputo, +many others
  - GSFC ASD Comms - Barb Mattson, Sara Mitchell
  - Interns - Shoshana Schlauderaff (animation), Ashley Balzer, Abigail Major (social media)



# Fermi@10 Website

All the details:

<https://fermi.gsfc.nasa.gov/fermi10/>

The screenshot shows the Fermi@10 website homepage. At the top, there is a NASA logo and the text "National Aeronautics and Space Administration Goddard Space Flight Center" and "Fermi • HEASARC • Sciences and Exploration". A large banner reads "Celebrating 10 Years of Fermi" with a "Vote for the top science result now!" call to action and the date "June 11, 2018". A navigation menu includes "Home", "What is Fermi", "Science", "Fermi@10", "Support Center", "Mission Page", and "Students/Teachers". The main content area features a large image of the Fermi satellite and a welcome message: "Welcome to a Fermi's 10th year! We'll be celebrating throughout 2018, sharing Fermi's influence on science, technology, and art. If you want to stay on top of all the Fermi fun, be sure to follow/friend NASA Fermi on Facebook and Twitter!". Below this, there are five circular icons with corresponding text: "Fermi Launch 10<sup>th</sup> Anniversary - June 11", "Fermi on Tumblr Monthly posts introducing Fermi's topic for the month", "Fermi Fridays Weekly posts discussing all things Fermi", "Fermi-related Facebook Live events throughout 2018!", and "Fermi Science Playoffs Vote for your favorite gamma-ray discovery!". Social media icons for Twitter and Facebook are also visible.

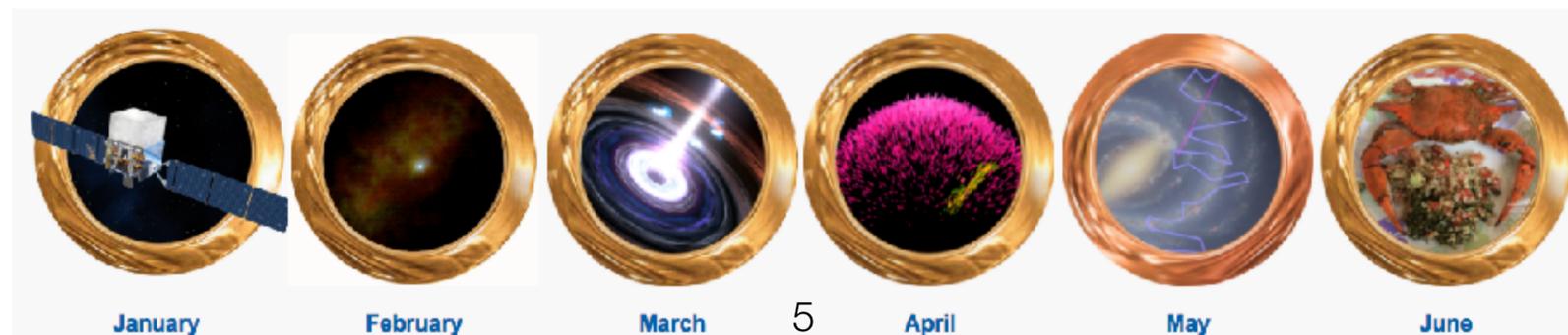
# Tumblr

- NASA Blueshift (Goddard Astrophysics Communications Team) creates timely Tumblr posts aimed a middle-school level audience
- Serves as general introductions to topics

The image shows a screenshot of the NASA Fermi 10th anniversary website. At the top, there is a banner with the text "Celebrating 10 Years of Fermi" and "Vote for the top science result now! June 11, 2018". Below the banner is a navigation menu with links: Home, What is Fermi, Science, Fermi@10, Support Center, Mission Page, and Students/Teachers. The main content area is titled "Index of Fermi Tumblr Posts". It features a large circular graphic on the left with a green background and a white 't' logo. To the right of this graphic is a welcome message: "Welcome to a Fermi's 10th year! As we celebrate Fermi's 10 years in space, NASA will be posting fresh information about the Fermi mission and the amazing gamma-ray science being done around the globe. Here are some of the Tumblr posts that have already feature Fermi and gamma-ray science. This list will be updated as new content is published." Below the welcome message is a list of eight circular thumbnails, each with a corresponding title: "Meet Fermi: Our Eyes on the Gamma-ray Sky", "Neutron Stars are Weird!", "Five Famous Pulsars from the Past 50 Years", "The Universe's Brightest Lights Have Some Dark Origins", "What's Made in a Thunderstorm and Faster Than Lightning? Gamma Rays!", "What are the Universe's Most Powerful Particle Accelerators?", and "Pick Your Favorite Findings From Fermi's First Decade". Social media icons for Twitter and Facebook are visible on the right side of the page.

# Fermi Fridays

- Theme each month
  - Jan - general intro
  - Feb - pulsars
  - Mar - AGN
  - April - TGFs
  - May - Cosmic rays & SNRs
  - June/July - Launch -> Science ops
  - Aug - GRBs
  - Sep - Solar
  - Oct - Galactic surprises
  - Nov - Dark Matter/Bubbles
  - Dec - Wrap-up?
- General monthly Friday structure
  - 1st - Overview
  - 2nd - Behind the Scenes
  - 3rd - Technical
  - 4th - Creative things
  - (5th - Fermi Xtra)
- Posts written by Fermi@10 team, scientists from the instrument teams, FUG, and community



## Fermi Fridays - March

### March's Topic: Active Galactic Nuclei

Mar  
02



#### March is AGN month! Introduction to Active Galactic Nuclei

What are Active Galactic Nuclei, and why are they so interesting to Fermi scientists? Find out more about these giant, powerful, and numerous gamma-ray objects.

Mar  
09



#### Fermi Talks Tech: How does Fermi data get to scientists so fast?

Scientists monitoring Active Galactic Nuclei need to know when one of them starts to flare. As an all-sky scanning instrument, Fermi is often the first to detect activity. Find out how the data gets to scientists quickly to allow for rapid multi-wavelength observations.

Mar  
16



#### Behind the Scenes: Doing Science Across the Spectrum

Astrophysicists learn about how AGN jets form, energize particles, and radiate such an extreme amount of light by studying not only gamma rays, but also by watching their light at other wavelengths.

Mar  
23



#### Art of the Sky: AGN science inspires art!

The collaboration between Fermi scientists and the Advanced 2D Animation class at the Maryland Institute College of Art (MICA) lets us explore Active Galactic Nuclei (AGN) through the eyes of the artist. Plus more cake!

Mar  
30



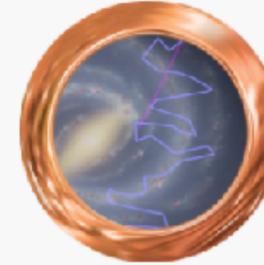
#### A Little Something Extra: Join the Fermi Birthday Celebration!

It's been an amazing 10 years in space for Fermi, with groundbreaking discoveries from all across the universe. After 57,264 orbits, 3,579 days in space, 3,187 publications, 214 automatic reports, 118 TOO's, and four Rossi prizes, it's time for us to give back to our fans.

## Fermi Fridays - May

### May's Topic: Cosmic Rays & Particles Accelerators in Space

May  
04



#### May is Cosmic Ray month! Cosmic Rays and Particle Acceleration

What exactly are cosmic rays, and where do they come from? Even though it was designed to detect gamma rays, Fermi has the ability to detect and measure the energies of cosmic rays that hit the satellite. Find out how Fermi scientists use this information to understand the source of these high-energy particles from space.

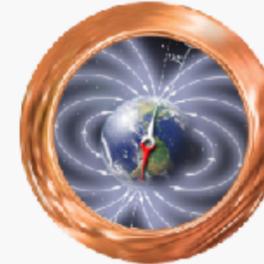
May  
11



#### Fermi Talks Tech: Using Fermi's ACD to Measure Cosmic Ray Abundances

Fermi-LAT's Anti-Coincidence Detector is the first line of defense in distinguishing between cosmic rays and gamma-rays. But it can also be used to study these highly energetic particles. Find out more about how the ACD detects and measures the various elements that make up the storm of cosmic rays hitting Fermi every second.

May  
18



#### Behind the Scenes: Using the Whole Earth as a Precision Magnet

Surprisingly, at gamma-ray energies there are more cosmic-ray positrons than expected. Fermi LAT used the Earth as a precision magnet to separately measure electrons and positrons. Where do these extra positrons come from, perhaps dark matter?

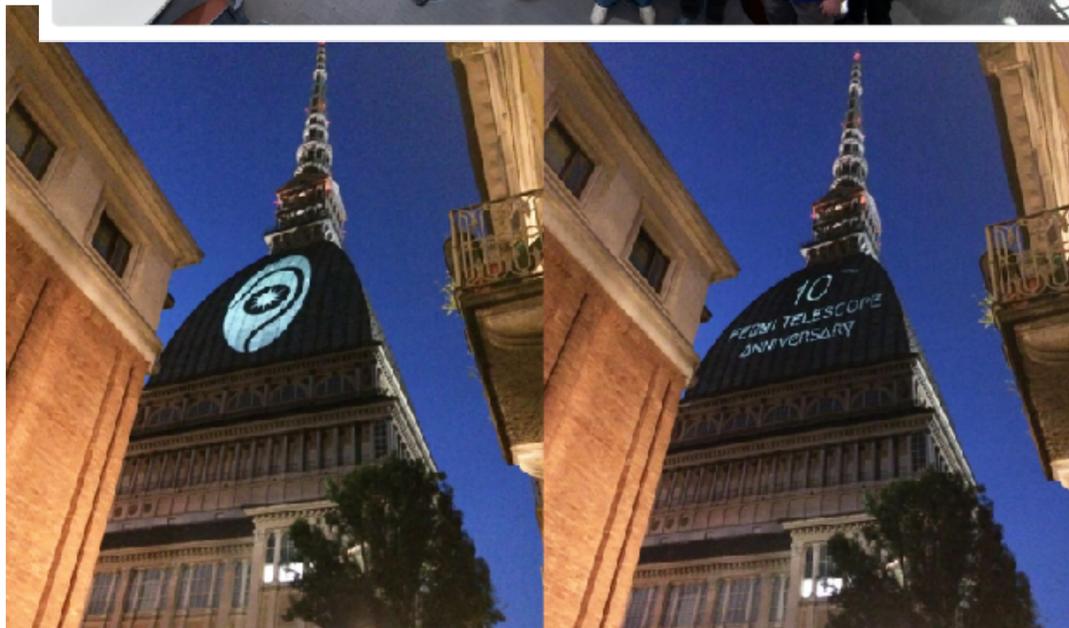
May  
25



#### Art of the Sky: Cosmic Rays and Cakes!

Cosmic rays have served as a source of inspiration for animators and confectioners alike. Take a look at some of the cosmic ray and ACD inspired creations from the past ten years.

# Launch Anniversary Activities



**reddit AMA**  
MONDAY, JUNE 11, 2018  
2PM EDT / 11AM PDT / 1800 GMT

Join us LIVE to ask Fermi scientists about Fermi's 10 years of discovery!

[reddit.com/r/IAmA](https://reddit.com/r/IAmA)  



# Science Playoffs

- Public voting for favorite Fermi science result
- Initial seeding by instrument teams (significant upsets)
- Each image links to a page describing science
- Vote totals ~10k
- Vote - Final Round on now!
- <https://fermi.gsfc.nasa.gov/fermi10/brackets/>

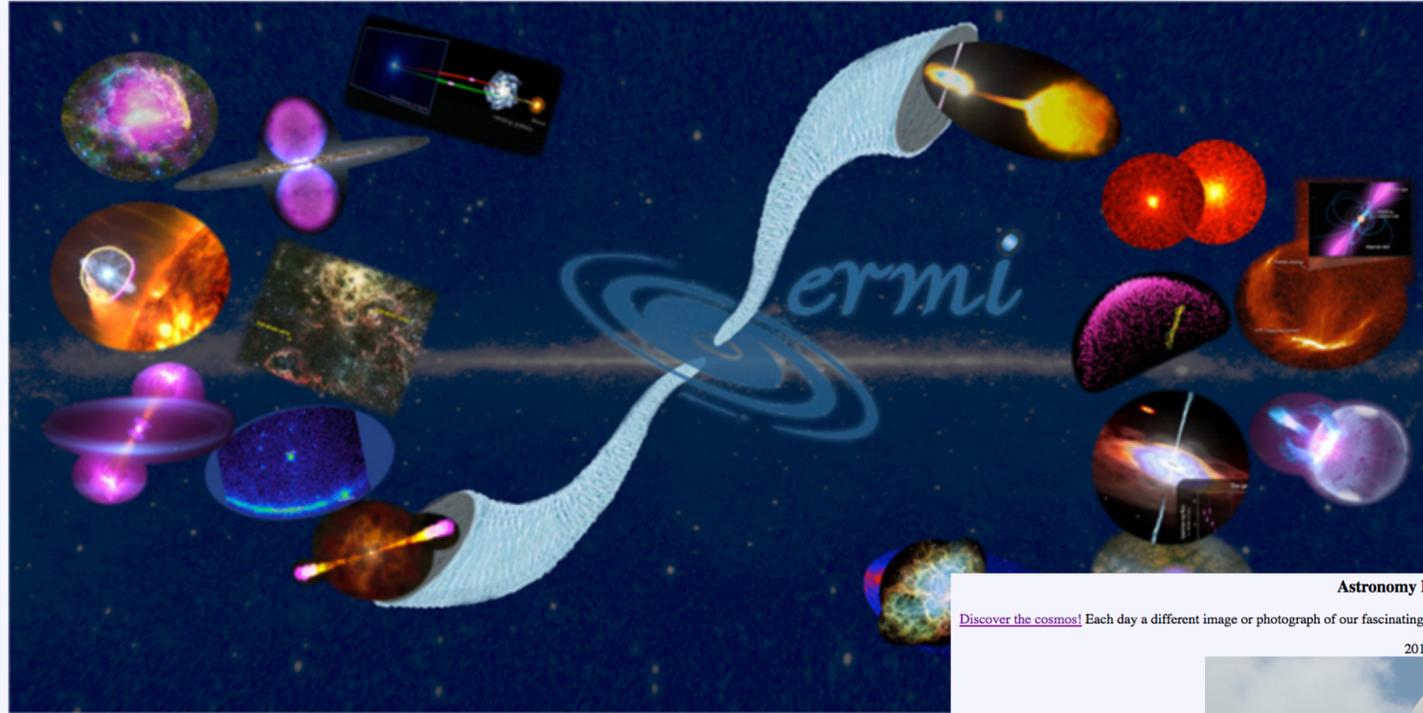


# APOD

## Astronomy Picture of the Day

[Discover the cosmos!](#) Each day a different image or photograph of our fascinating universe is featured, along with a brief explanation written by a professional astronomer.

2018 June 8



Astronomy Picture of the Day

[Discover the cosmos!](#) Each day a different image or photograph of our fascinating universe is featured, along with a brief explanation written by a professional astronomer.

2018 June 11



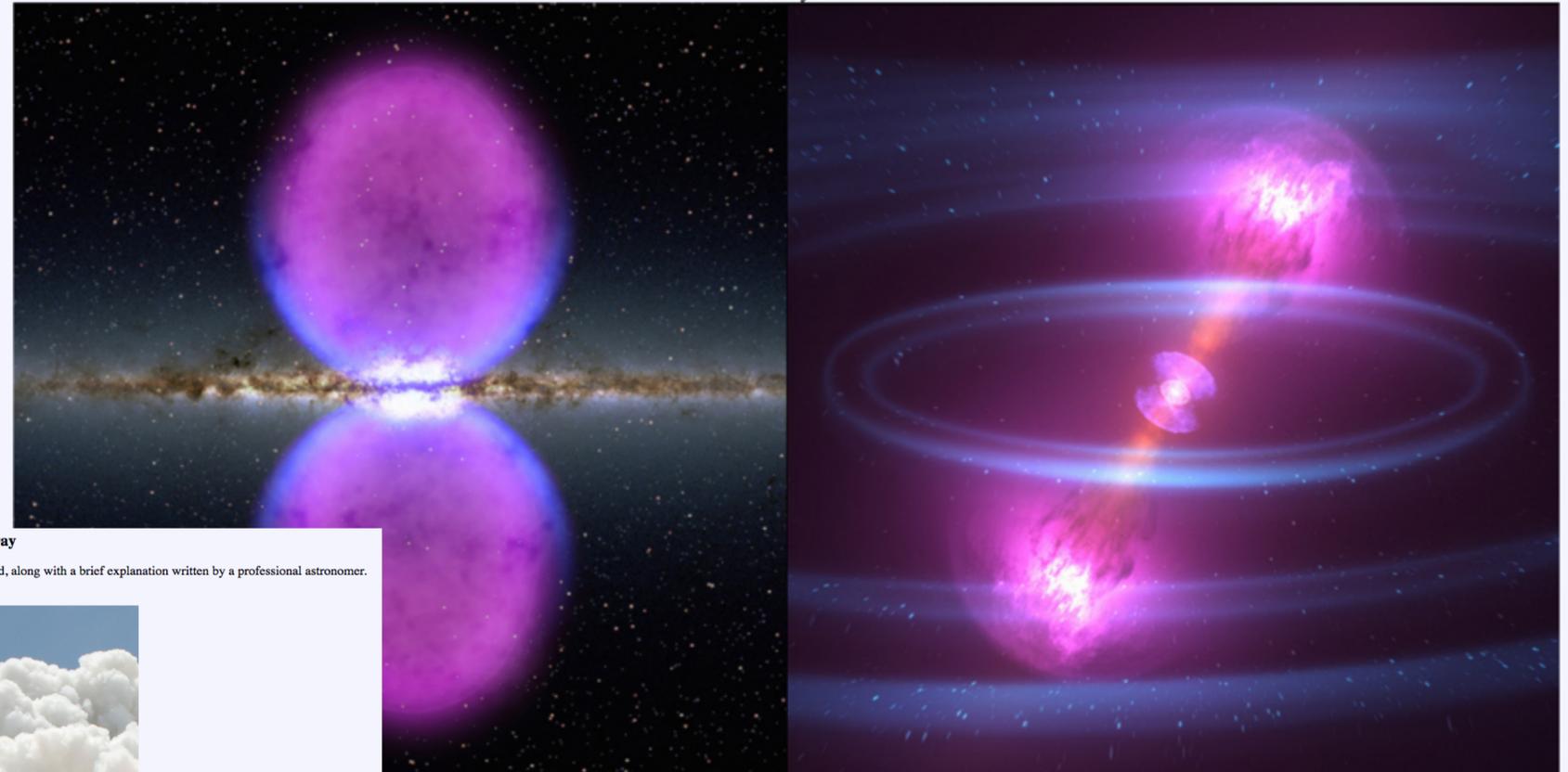
At Last GLAST

Image Credit: [NASA](#), [DOE](#), [Fermi Gamma-ray Space Telescope Collaboration](#)

## Astronomy Picture of the Day

[Discover the cosmos!](#) Each day a different image or photograph of our fascinating universe is featured, along with a brief explanation written by a professional astronomer.

2018 July 23



Fermi Science Finals

Credit: [NASA](#), [DOE](#), [International Fermi LAT Collaboration](#), Jay Friedlander ([Goddard Space Flight Center](#))

<https://apod.nasa.gov/apod/astropix.html>

# AwesomeCon

- Festival for Science, Science Fiction, Comics, Fantasy, etc.
- Washington DC Convention Center - April 1, 2018
- 45 minute panel with presentations and questions
- NASA panels
  - Fermi
    - Pulsars
    - Neutron Star Merger
    - Active Galaxies
    - Dark Matter
  - Gravitational Waves



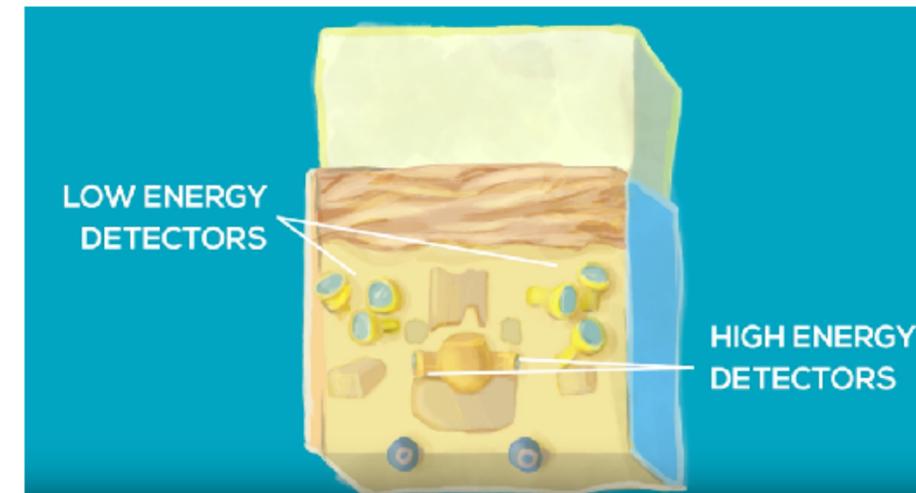
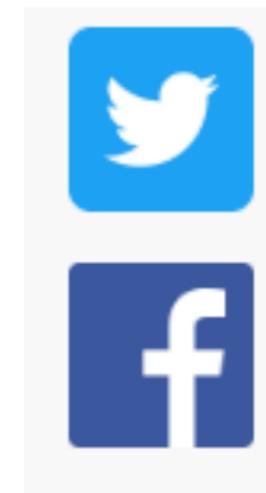
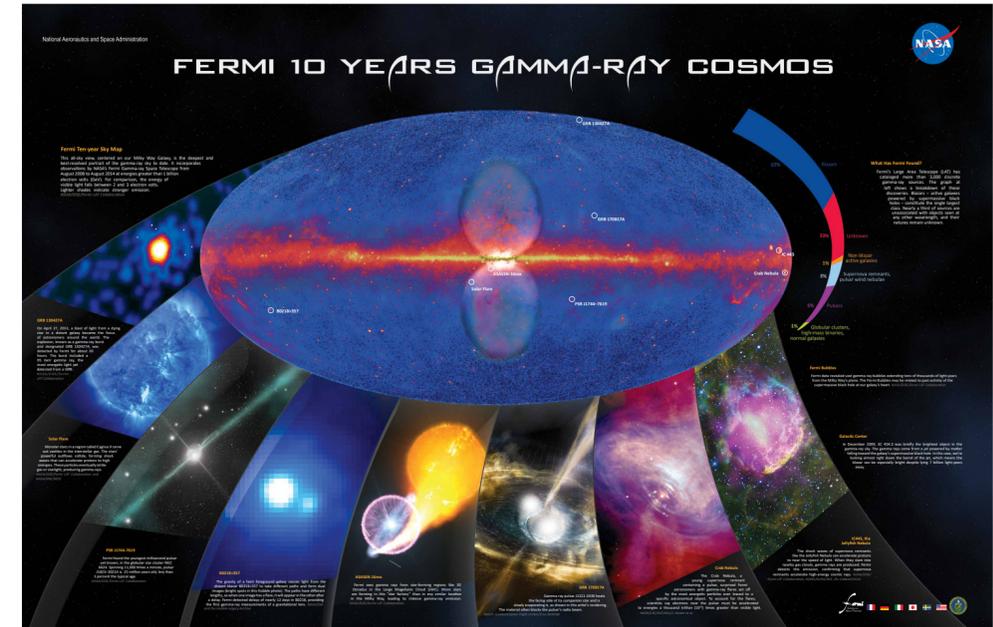
# Send a Thing - Get a Thing

- Fermi Xtra - Send Fermi a birthday card, you get a card back



# Even More

- New Fermi Science poster
- Fermi infographic
- New animations
- Updated Science on the Sphere animations
- On This Day posts
- Increases in Social Media followers
  - Twitter - 56k total
  - Facebook - 27k total



# 8th Fermi Symposium

- October 14-19 in Baltimore
- Abstracts, registration, hotel booking now available
- Speaker invitations going out this week
- Organization
  - LOC - chaired by Roopesh Ojha
  - SOC - co-chaired by Judy & Dave
- Provide input towards Senior Review

**Celebrating 10 Years of Fermi**  
Vote for the top science result now!  
June 11, 2018

Home Registration Abstract Submission Program Participants Hotel Local Info FAQ SOC/LOC

## Eighth International Fermi Symposium

Date: Oct 14-19, 2018  
Location: Baltimore, MD

### Important Dates

2018 July 16 - Open Registration & Abstract Submission  
2018 Aug 24 - Abstract Deadline  
2018 Sep 07 - Preliminary Program Announced  
2018 Sep 14 - Early Registration Ends  
2018 Sep 19 - Hotel Group Rates End  
2018 Oct 11 - Regular Registration Ends (Late/Onsite Registration is available)  
2018 Oct 14-19 - Symposium (Sunday evening through Friday noon)

### Overview

This symposium follows previous Fermi Symposia at [Stanford, CA](#) (February 2007), [Washington, DC](#) (November 2009), [Rome, Italy](#) (May 2011), [Monterey, CA](#) (November 2012), [Nagoya, Japan](#) (October 2014), [Arlington, VA](#) (November 2015), and [Garmisch-Partenkirchen, Germany](#) (October 2017).

The two Fermi instruments have been surveying the high-energy sky since August 2008. The Large Area Telescope (LAT) has discovered more than a thousand new sources and many new source classes, bringing the importance of gamma-ray astrophysics to an ever-broadening community. The LAT catalog includes supernova remnants, pulsar wind nebulae, pulsars, binary systems, novae, several classes of active galaxies, starburst galaxies, normal galaxies, and a large number of unidentified sources. Continuous monitoring of the high-energy gamma-ray sky has uncovered numerous outbursts from a wide range of transients. Fermi LAT's study of diffuse gamma-ray emission in our galaxy revealed giant bubbles shining in gamma rays. The direct measurement of a harder-than-expected cosmic-ray electron spectrum may imply the presence of nearby cosmic-ray accelerators. LAT data have provided stringent constraints on new phenomena such as supersymmetric dark-matter annihilations as well as tests of fundamental physics. The Gamma-ray Burst Monitor (GBM) continues to be a prolific detector of gamma-ray transients: magnetars, solar flares, terrestrial gamma-ray flashes and gamma-ray bursts at keV to MeV energies, complementing the higher energy LAT observations of those sources in addition to providing valuable science return in their own right.

All gamma-ray data are made immediately available at the [Fermi Science Support Center](#). These publicly available data and Fermi analysis tools have enabled a large number of important studies. We especially encourage guest investigators worldwide to participate in this symposium to share results and to learn about upcoming opportunities.

This meeting will focus on the new scientific investigations and results enabled by Fermi, the mission and instrument characteristics, future opportunities, and coordinated observations and analyses.

### Hotel Information

8th International Fermi Symposium  
October 14-19, 2018  
<https://go.nasa.gov/2H5qhlq>